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**NEW CLAIMS**

**PRELIMINARY REMARK:** The original Claims 1 to 68 are all canceled. Former claims 9 and 70 are now regrouped in claim 26: this claim gives precisions on new claim 16 that is a reformulation of former claim 27, a reformulation whose validity has been argued on the basis that Sity does not describe self-correction capabilities of the die. There are now 26 claims altogether.

Claim 1. A die containing at least one embedded system such that when said dice is at rest, said embedded system is in a state whose knowledge allows determination of which face of said die is down or the determination that the rest state is improper, said determination of which face of said die is down or that the rest state is improper using piezoelectric facets that each senses all or part of the weight of the die when they are bellow and support all or part of the weight of the die.

Claim 2. A die containing at least one embedded system such that when said dice is at rest with one of its face down, said embedded system is in a state whose knowledge allows determination of which face of said die is down, where part or all of the energy needed by said embedded system is generated by at least one of a motion captor system and a thermal energy captor using the Seebeck-Peltier effect.

Claim 3. A die as in claim 2, said die being such that using one or more embedded transmission systems, it can transmit at least one of: said state whose knowledge allows determination of which face of said die is down, the information of which face is down, the information of which face is up, the information of what is the value that can be read on the top face.

Claim 4. A die as in claim 3 where part or all of the energy needed by said transmission systems is generated by at least one of a motion captor system and a thermal energy captor using the Seebeck-Peltier effect.

Claim 5. A die as in claim 4 where the energy produced by said motion or heat captor allows transmission of the state of said die to only persist a short time after each throw.

Claim 6. A die as in claim 2 further equipped with a special board emitting heat.

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Claim 7. A die as in claim 3 further equipped with a special board emitting heat.

Claim 8. A die containing at least one embedded system such that when said dice is at rest with one of its face down, said embedded system is in a state whose knowledge allows determination of which face of said die is down, said die being such that using one or more embedded transmission systems, can transmit at least one of: said state whose knowledge allows determination of which face of said die is down, the information of which face is down, the information of which face is up, the information of what is the value that can be read on the top face, where detection of the state of said die is made using the photoelectric effect and a special board emitting electromagnetic radiations.

Claim 9. A die as in claim 8, said die being such that using one or more embedded transmission systems, it can transmit at least one of: said state whose knowledge allows determination of one at least of which face of said die is down, the information of which face is down, the information of which face is up, the information of what is the value that can be read on the top face.

Claim 10. A die as in claim 1, said die furthermore containing at least one transmission system such that when said dice is at rest, said embedded system can transmit at least information allowing determination of what is the value that can be read on the top face, or the information that the rest state of the die is improper.

Claim 11. A die containing at least one embedded system such that when said dice is at rest with one of its face down, said embedded system is in a state whose knowledge allows determination of which face of said die is down or the information that the rest state is improper, said die being such that using one or more embedded transmission systems, it can transmit at least one of: said state whose knowledge allows determination of which face of said die is down, the information of which face is down, the information of which face is up, the information of what is the value that can be read on the top face, or whether the rest state is improper, where part or all of the determination of which face is up or the transmission of information allowing to determine which face is up can be realized as MEMS or NEMS size modifications of an usual die..

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Claim12. A die as in claim 1 where part or all of the teaching can be realized as MEMS or NEMS size modifications of an usual die.

Claim13. A die as in claim 10 where part or all of the teaching can be realized as MEMS or NEMS size modifications of an usual die.

Claim 14. A die containing at least one embedded system such that when said dice is at rest with one of its face down, where detection of the face that is down is made using solid or liquid moving parts that allows electricity to flow in a circuit that depends on which face of said die is down, whereby the down face does not depend on said face resting on some surface.

Claim 15. A die containing at least one embedded system such that when said dice is at rest with one of its face down, said embedded system is in a state whose knowledge allows determination of which face is down, the information of which face of said dice is up, the information of what is the value that can be read on the top face, or whether the rest state is improper, said die being such that using one or more embedded transmission systems, it can transmit at least one of: said state whose knowledge allows determination of which face is down, the information of which face of said dice is up, the information of , where detection of the face that is down is made using solid or liquid moving parts that allows electricity to flow in a circuit that depends on which face of said die is down.

Claim 16. A die containing at least one embedded system such that when said dice is at rest with one of its face down, said embedded system is in a state whose knowledge allows determination of which face of said dice is up, the information of what is the value that can be read on the top face, or whether the rest state is improper, said die being such that using one or more embedded transmission systems, it can transmit at least one of: said state whose knowledge allows determination of which face of said die is down, the information of which face is down, the information of which face is up, the information of what is the value that can be read on the top face, where said die stores information and contains embedded equipment that allows judging and correcting the fairness of said die.

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Claim 17. A die containing at least one embedded system such that when said die is at rest with one of its face down, said embedded system is in a state whose knowledge allows determination of which face of said die is up, the information of what is the value that can be read on the top face, or whether the rest state is improper, said die being such that using one or more embedded transmission systems, it can transmit at least one of: said state whose knowledge allows the determination of which face of said die is down, the information of which face is down, the information of which face is up, the information of what is the value that can be read on the top face, where the embedded systems are securely protected and also allow one to detect fraudulent attempts to break in the die.

Claim 18. A die as in claim 17 where said die emits alerts when fairness is not respected and such that the lack of fairness is acknowledged by the dice upon authorized enquiry.

Claim 19. A die as in claim 2 where the beginning of the handling of the die prompts further electrical energy sources.

Claim 20. A die as in claim 15 where the state of said die after the throw is recognized at the conclusion of the throw, said knowledge of the state of the die being complete and in particular comprising whether the die rests in an acceptable position or not.

Claim 21. A die as in claim 19 where the state of said die after the throw is recognized at the conclusion of the throw, the knowledge of the state of the die being complete, and in particular comprising whether the die rests in an acceptable position or not.

Claim 22. A die as in claim 3, where the beginning of the handling of the die prompts further electrical energy sources and the state of said die after the throw is recognized at the conclusion of the throw and input in the unfolding of the game without any player having any further input to make such as indicating that the throw has been performed and/or that the information sent by said die about its state is complete, and in particular if the die rests in an acceptable position or not, so that the game can proceed.

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Claim 23. A die containing at least one embedded system such that when said die is at rest with one of its faces down, said embedded system is in a state whose knowledge allows determination of which face of said die is down, said die being such that using one or more embedded transmission systems, can transmit at least one of: said state whose knowledge allows determination of which face of said die is down, the information of which face is down, the information of which face is up, the information of what is the value that can be read on the top face, where the transmission protocol is any of the Bluetooth protocol or one of the versions of the 802.11 protocols of the Institute of Electronic and Electrical Engineering, such as 802.11b.

Claim 24. A die as in claim 23 where the set of energy sources used by the die comprises a part that gets activated when said die are handled or thrown, this part of the energy serving in particular to open other energy sources that are needed for using the transmission protocol that has been implemented in the die.

Claim 25. A die as in claim 23 where the transmission protocol characteristics are used to cover the identification and further basic security needs that condition good usage of the die and, in particular prevents interferences with other systems and allow several games to take place simultaneously in a room.

Claim 26. A die as in claim 16 where the corrections to fairness are made in at least one of a deterministic way or in a random way.

Claim 27. An object that can recognize the up and down directions without needing to rest on any surface.

Claim 28. A method whereby an object can recognize the up and down directions without needing to rest on any surface.